



Wollo University
Kombolcha Institute of Technology
College of Informatics
Department of Information Technology

Program	(Regular) B.Sc. in Information Technology				
Course Code	ITec2052				
Course Title:	Object Oriented Programming				
Module Name	Advanced programming				
Module No.	ITec-M2051				
Instructor	Tadele A.				
	Office location: @ the building where CBE is located, Office no: 504A				
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	Consultation Hours: Wednesdays:7:40 – 9:20 LT; Fridays: 2:30-5:30 LT				
ECTS Credits (CP)	5				
Contact Hours (per week)	Lecture	Tutorial	Lab/Practical	Home Study	Total
	32	0	48	55	135
Lecture days, Hours and Room:	Wednesdays, 9:40 – 11:30 LT @ CR-1709				
Lab days and Hours	Wednesdays, 2:10 – 5:00 LT @ IT 2 nd year lab				
Target Group:	2 nd year Information Technology students				
Year /Semester	Year: II, Semester: II				
Pre-requisites	ITec2042				
Status of the Course	Core				
Course Description	The goal of the course is to give a basic of class; data members & member functions; friends, static members, overloading; inheritance & composition; virtual functions; virtual base classes; templates; exception handling; File handling; object-oriented design concepts.				
Course Objectives	Upon completion of this course, students should be able to: <ul style="list-style-type: none"> – Create Java technology applications that leverage the object-oriented features of the Java language, such as encapsulation, inheritance, and polymorphism – Execute and run a Java technology application – Use Java technology data types and expressions – Use Java technology flow control constructs 				

	<ul style="list-style-type: none"> – Use arrays and other data collections – Implement error-handling techniques using exception handling – Writing and executing java applets
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Detailed Content and Schedule:

Week(s)	Topics	Learning Outcomes
Week 1	1. Introduction to Object-Oriented Programming 1.1.Types of Programming Paradigms 1.2.Why Object-Orientation? 1.3.Principles of Object-Oriented Programming 1.4. Object-Oriented Programming Language Examples	At the end of this chapter, students should be able to: <ul style="list-style-type: none"> • Identify the different programming paradigms • Distinguish the reasons to choose object-oriented paradigm over other paradigms • List and discuss the principles of object-oriented programming • List languages that are based on object-oriented programming paradigm
Weeks 2, 3,4 & 5	2. Basics of Java Programming Language 2.1.Installation and setting of JDK for Java programming environment 2.2. JVM, java source file and Java Byte code 2.3. the <i>java.lang</i> package 2.4. the <i>Object</i> class 2.5. Data type and identifiers 2.6. Operators 2.7. Decision and Repetition Statements 2.8. Java Standard input, output and error streams	At the end of chapter two, students should be able to: <ul style="list-style-type: none"> • install the JDK API onto a personal computer and set the appropriate value for JAVA_HOME environmental variable • explore the source files of JDK and understand how the libraries are organized • know the basic classes and

	<p>2.9.packages, interfaces, classes, objects and methods in java</p> <p>2.10. Constructors</p> <p>2.11. the main method in java applications</p> <p>2.12. the JAR Tool</p>	<p>interfaces of java</p> <p>programming languages</p> <ul style="list-style-type: none"> • understand the declaration of main method • differentiate standard input and output classes for basic java programming • identify the valid identifiers and data types in java programming • create interfaces and develop classes that implement the interfaces • create java classes that contain appropriate fields, constructors and other methods • use packages to organize codes • create JAR file for java applications
Weeks 6 & 7	<p>3. Strings and Text Input/Output in Java</p> <p>3.1. the String class</p> <p>3.2.the Character class</p> <p>3.3.Command-line arguments for main function</p> <p>3.4.the File class</p> <p>3.5.File Input and Output</p>	<p>At the end of chapter three, students should be able to:</p> <ul style="list-style-type: none"> • Use the String class to create objects for string literals or array of characters • Use the Character class to create objects for the primitive char data types • Understand how

		<p>arguments could be passed to the main function of java application</p> <ul style="list-style-type: none"> • Work on the File class to create file object for file paths and obtain file properties • understand how to write data to file using PrintWriter class • understand how to read from a file using Scanner class
Weeks 8, 9 & 10	4. More on OOP Concepts in Java Programming <ul style="list-style-type: none"> 4.1. Abstraction 4.2. Encapsulation and Data Hiding 4.3. Inheritance 4.4. Polymorphism 	<p>At the end of chapter four, students should be able to:</p> <ul style="list-style-type: none"> • Understand how abstraction is helpful in java programming • Know how data and methods needs to be encapsulated for better organization of programs and data hiding • Apply inheritance in writing java application to reduce code redundancy • Know the ways of creating many forms of methods that have the same function name
Assignment #1 (8 %); Lab Exam (25%); Project work (20%)		

Weeks 11 & 12	5. Exception Handling in Java 5.1.Exception handling overview 5.2.Exception types 5.3.The finally keyword 5.4.Chained exceptions 5.5.Creating Custom Exception Classes	At the end of chapter four, students should be able to: <ul style="list-style-type: none"> • Understand the necessity of exception handling in writing java application • Identify the different exception types and use all forms of exceptions in java programs • Create chained exceptions in java applications • Create user-defined exception classes
Assignment #2 (7%)		
Weeks 13 & 14	6. Java Applets 6.1. An Overview of Applets 6.2. Java Applets Vs. Java Application 6.3. Life Cycle of an Applet	At the end of chapter four, students should be able to: <ul style="list-style-type: none"> • Know how java applets are created • Understand the differences between java applet and java application • Know how to convert a java application to a java applet • Understand the life cycle of a java applet
Final Written Exam (40%)		

Summary of Assessment methods:

Assessment	% of Final Grade	Week
Project work	20	Project work starts in the end of the 10 th week
Lab Exam	25	At the end of the 10 th week
Two Assignments	15	At the end of 10 th week and at the end of 12 nd week
Final Written Exam	40	In line with the schedule of the institute

Text Book and References:

1. Introduction to Java Programming, 8th Edition, Y. Daniel Liang, Prentice Hall, 2011(**softcopy available**)
2. Java, How to Program, 5th Edition, H.M.Deitel and P.J.Deitel, New Delhi, 2004
3. James Mc. Govern, “Java 2”, Hungry Minds Inc.
4. E.Balagurusamy “Programming with Java 2”, Tata Mc. Graw Hill, India.
5. Core Java, Volume I-Fundamentals, CAY S. HORSTMANN & GRAY CORNELL, The Sun Microsystems Press, Java Series, 2001.

Approved by:

Quality Assurance Focal Person

Name: _____

Signature: _____

Department Head:

Name: _____

Signature: _____